Price range of optical modules



Overview

Optical Transceiver Pricing: Cost Ranges by Speed and TypeThis article compares typical cost ranges across speeds and transceiver types, explains why price.

Key Takeaways

The average price of optical modules in 2024 ranges from approximately $150 to $200 per unit, with high-speed 400G/800G modules costing significantly more due to advanced technology and supply constraints.

Current Pricing Overview

In 2024, global sales of optical modules were estimated at 88–117 million units, with an average price of $150–200 per unit for standard modules. High-speed modules, such as 400G, 800G, and emerging 1. 6T modules, are more expensive due to complex chip design, photonic integration, and digital signal processing requirements.

For example, AI and cloud data center applications are driving demand for these high-speed modules, which can significantly increase per-unit costs.

Factors Influencing Price

Chip Design and R&D: High-speed optical modules require advanced photonic integrated circuits, lasers, modulators, and DSP cores.

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D can account for 20–30% of total chip cost, especially for 400G and 800G modules. Raw Materials: Substrates like silicon, indium phosphide, and high-quality wafers, along with active optical components, contribute substantially to cost. Manufacturing and Packaging: Co-packaged optics (CPO) and silicon photonics solutions involve sophisticated assembly and testing, which increase prices.

Supply and Demand: Shortages of EML chips and high demand from AI clusters and 5G networks can drive prices higher, particularly for high-speed modules.

Market Trends

The global optical module market was valued at around $17. 6 billion in 2024 and is projected to reach $56. 8 billion by 2031, reflecting a CAGR of 15.

8%. High-speed modules are increasingly critical for data centers, AI training clusters, and 5G infrastructure, making them a key cost driver in CAPEX planning. Chinese vendors are capturing significant market share in 400G/800G modules due to local supply chain advantages, which can influence regional pricing.

Summary

For standard optical modules, expect $150–200 per unit, while high-speed 400G/800G modules can cost several times more depending on technology, form factor, and supply constraints. Prices are influenced by R&D, materials, manufacturing complexity, and market demand, with ongoing trends toward silicon photonics and co-packaged optics likely to affect future pricing.

Article Content

Optical Transceiver Pricing: Cost Ranges by Speed and Type

This article compares typical cost ranges across speeds and transceiver types, explains why prices vary, and gives practical guidance for choosing the right optics for a given budget and performance

Global Optical Modules Sales Market Report, Competitive Analysis

Our research indicates that demand for 400G/800G and even 1.6T optical modules for cloud data centers and AI training clusters has been accelerating over the past two years, with the

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FS offers a growing portfolio of optical transceivers, with speed range from 100M, 1G, 10G, 25G, 40G, 50G, 100G, 200G, 400G to 800G and beyond. The fiber optic transceiver modules can work in any

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Optical Module Procurement Guide

Shifts in pricing for optical modules will continue to be the result of technology advancements and changing market needs. The shift to higher-speed technologies (e.g., 100G or

OPTICAL MODULE Price

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Deep Dive: Optical Module Market

In terms of pricing, 800G LPO modules have been sold at around $600 this year, which is cheaper than single-mode conventional optical modules priced above $700 but more expensive

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Optical Transceiver Modules Prices & Specifications

What is Optical Transceiver Modules/SFP? Optical Transceiver Modules/SFP, also called fiber optic transceiver or optical transceiver, is a typically hot-pluggable device used in high-bandwidth data

Solar Module Prices 2025: Complete Guide To Current Costs & Trends

Comprehensive guide to solar module prices in 2025. Current costs, market trends, buying strategies, and price forecasts. Updated with latest data.

Optical Module Procurement Guide

Optical Module Procurement guide to pricing trends, OEM vs aftermarket insights, and strategic buying tactics to optimize costs, reliability, and total ownership.

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